CLAIMS

1. A substrate polymer comprising a polymer with a surface modified to facilitate co-continuity of functional groups to an external environment.

2. The substrate polymer of claim 1, wherein the polymer comprises a polyolefin, a fluoropolymer or a blend of polymers or co-polymers.

3. The substrate polymer of claim 2, wherein the polymer comprises polypropylene or a polypropylene/EPR co-polymer.

4. The substrate polymer of claim 2, wherein the polymer comprises a polypropylene/EPDM blend.

5. The substrate polymer of claim 2, wherein the polymer comprises polyethylene.

6. The substrate polymer of claim 1, wherein the polymer comprises the following characteristics:-

a hardness value of from about Hardness Shore “A” 5 to about Hardness Shore "D" 100; and

a Flexural Modulus Value of from about 50 to about 2000 Mpa.

7. The substrate polymer of claim 1, wherein the polymer comprises a solid phase.

8. The substrate polymer of claim 1, wherein the polymer is prepared by a method of macroporous formulation.

9. The substrate polymer of claim 1, wherein the polymer is macroporous.

10. The substrate polymer of claim 1, wherein the substrate polymer has a mouldable shape.

11. The substrate polymer of claim 10, wherein the shape is a cylinder, film, sheet, bead or disc.

12. The substrate polymer of claim 1, wherein the external environment comprises a liquid, solid or gaseous environment comprising reactive entities.

13. The substrate polymer of claim 12, further comprising one or more polymers or monomeric units thereof grafted to the substrate polymer in pellicular formation.

14. A hybrid polymer comprising a substrate polymer with a surface modified to facilitate co-continuity of functional groups to an external environment and one or a plurality of grafted polymers in pellicular formation, wherein at least one polymer in the hybrid polymer maintains the co-continuous character of functional groups to an external environment.

15. The hybrid polymer of claim 14, wherein the substrate polymer comprises a polyolefin, a fluoropolymer or a blend of polymers or co-polymers.

16. The hybrid polymer of claim 15, wherein the substrate polymer comprises polypropylene or a polypropylene/EPR co-polymer.

17. The hybrid polymer of claim 15, wherein the substrate polymer comprises a polypropylene/EPDM blend.

18. The hybrid polymer of claim 15, wherein the substrate polymer comprises polyethylene.

19. The hybrid polymer of claim 14, wherein the substrate polymer comprises the following characteristics:

a hardness value of from about Hardness Shore "A" 5 to about Hardness Shore "D" 100; and

a Flexural Modulus Value of from about 50 to about 2000 Mpa.

20. The hybrid polymer of claim 14, wherein the substrate polymer is a polyolefin or fluorinated polymer comprising the following characteristics:-

a hardness value of from about Hardness Shore "A" 10 to about Hardness Shore "D" 80; and

a Flexural Modulus Value of from about 80 to about 1200 Mpa.

21. The hybrid polymer of claim 14, wherein the substrate polymer comprises a solid phase.

22. The hybrid polymer of claim 14, wherein the substrate polymer is prepared by a method of macroporous formulation.

23. The hybrid polymer of claim 14, wherein the substrate polymer is macroporous.

24. The hybrid polymer of any one of claims 11 to 23, wherein the external environment comprises a liquid, solid or gaseous environment comprising reactive entities.

25. The hybrid polymer of claim 14, wherein the one or a plurality of grafted polymers is macroporous.

26. The hybrid polymer of claim 25, wherein the one or a plurality of grafted polymers comprise one or more olefinically-unsaturated monomers.

27. The hybrid polymer of claim 26, wherein the one or more olefinically-unsaturated monomers are selected from the list comprising methyl methacrylate, ethyl methacrylate, propyl methacrylate including all isomers thereof, butyl methacrylate including all isomers thereof, other alkyl methacrylates, corresponding acrylates, functionalized methacrylates and acrylates fluoroalkyl (meth)acrylates, methacrylic acid, acrylic acid, fumaric acid and esters thereof, itaconic acid and esters thereof, nucleic anhydride, styrene, .alpha.-methyl styrene, vinyl halides, acrylonitrile, methacrylonitrile, vinylidene halides of formula $CH_2$--C(Hal) $_2$ wherein each halogen is independently Cl or F, optionally substituted butadiene of the formula $CH_2=C(R_1)C(R_1)=CH_2$ wherein $R_1$ is independently H, Cl to $C_{10}$ alkyl, Cl or F, sulphonic acids or derivatives thereof of formula $CH_2=CHSO_2OM$ wherein M is NaS, K, Li, $N(R_2)_4$, or --$(CH_2)_2$--D wherein each $R_2$ is independently H or Cl or $C_{10}$ alkyl, D is $CO_2Z$, OH, $N(R_2)_2$ or $SO_2OZ$ and Z is H. Li, Na, K or $N(R_2)_4$, acrylamide or derivatives thereof of formula $CH_2$--$C(CH_3)CON(R_2)_2$, and/or mixtures thereof.

28. The hybrid polymer of claim 27, wherein the one or more olefinically-unsaturated monomers are selected from the list comprising functionalized methacrylates and styrene.

29. The hybrid polymer of any one of claims 25 to 28, wherein the one or a plurality of grafted polymers is prepared by a method of macroporous formulation.

30. The hybrid polymer of claim 29, wherein the grafted polymer comprises a honeycomb-like polymer selected from the list comprising a star polymer, a block polymer and a graft polymer.

31. The hybrid polymer of claim 29, wherein the grafted polymer comprises a polyHIPE-like polymer.

32. The hybrid polymer of claim 29, wherein the grafted polymer is made by a microemulsion polymerization method.

33. The hybrid polymer of claim 14, wherein the hybrid polymer has a mouldable shape.

34. The hybrid polymer of claim 33, wherein the shape is a cylinder, film, sheet, bead or disc.

35. The hybrid polymer of claim 34, wherein the hybrid polymer is useful as a substrate for solid phase applications including subsequent grafting.

36. A process for generating a hybrid polymer with a co-continuous character useful as a substrate for solid phase applications, said process comprising grafting a polymer to a substrate polymer wherein said grafted polymer is sufficiently rigid to permit access of individual functional groups in or within said hybrid polymer to an external environment.

37. The process of claim 36, wherein the substrate polymer comprises a polyolefin, a fluoropolymer or a blend of polymers or co-polymers.

38. The process of claim 36, wherein the substrate polymer comprises polypropylene or a polypropylene/EPR co-polymer.

39. The process of claim 36, wherein the substrate polymer comprises a polypropylene/EPDM blend.

40. The process of claim 36, wherein the substrate polymer comprises polyethylene.

41. The process of claim 36, wherein the substrate polymer comprises the following characteristics:-

a hardness value of from about Hardness Shore "A" 5 to about Hardness Shore

"D" 100; and

a Flexural Modulus Value of from about 50 to about 2000 Mpa.

42. The process of claim 36, wherein the substrate polymer is a polyolefin or fluorinated polymer comprising the following characteristics:-

a hardness value of from about Hardness Shore "A" 10 to about Hardness Shore "D" 80; and

a Flexural Modulus Value of from about 80 to about 1200 Mpa.

43. The process of claim 36, wherein the substrate polymer comprises a solid phase.

44. The process of claim 36, wherein the substrate polymer is prepared by a method of macroporous formulation.

45. The process of claim 36, wherein the substrate polymer is macroporous.

46. The process of claim 36, wherein one or more polymers or monomeric units thereof are grafted to the substrate polymer in pellicular formation.

47. The process of claim 36, wherein the grafted polymer is macroporous.

48. The process of claim 47, wherein the macroporous grafted polymer comprises one or more olefinically-unsaturated monomers.

49. The process of claim 47, wherein said one or more olefinically-unsaturated monomers are selected from the list comprising methyl methacrylate, ethyl methacrylate, propyl methacrylate including all isomers thereof, butyl methacrylate including all isomers thereof, other alkyl methacrylates, corresponding acrylates, functionalized methacrylates and acrylates fluoroalkyl (meth)acrylates, methacrylic acid, acrylic acid, fumaric acid and esters thereof, itaconic acid and esters thereof, nucleic anhydride, styrene, .alpha.-methyl

styrene, vinyl halides, acrylonitrile, methacrylonitrile, vinylidene halides of formula $CH_2$--$C(Hal)_2$ wherein each halogen is independently Cl or F, optionally substituted butadiene of the formula $CH_2{=}C(R_1)C(R_1){=}CH_2$ wherein $R_1$ is independently H, Cl to $C_{10}$ alkyl, Cl or F, sulphonic acids or derivatives thereof of formula $CH_2{=}CHSO_2OM$ wherein M is NaS, K, Li, $N(R_2)_4$, or --$(CH_2)_2$--D wherein each $R_2$ is independently H or Cl or $C_{10}$ alkyl, D is $CO_2Z$, OH, $N(R_2)_2$ or $SO_2OZ$ and Z is H. Li, Na, K or $N(R_2)_4$, acrylamide or derivatives thereof of formula $CH_2$--$C(CH_3)CON(R_2)_2$, and/or mixtures thereof.

50. The process of claim 49, wherein said one or more olefinically-unsaturated monomers are selected from the list comprising functionalized methacrylates and styrene.

51. The process of claim 47 to 50, wherein the grafted polymer is prepared by a method of macroporous formulation.

52. The process of claim 51, wherein the method of macroporous formulation results in a honeycomb-like polymer arrangement selected from the list comprising a star polymer, a block polymer and a graft polymer.

53. The process of claim 51, wherein the macroporous formulation method results in a polyHIPE-type polymer arrangement.

54. The process of claim 51, wherein the macroporous formulation method comprises a microemulsion polymerization method.

55. The process of claim 36, wherein the hybrid polymer has a mouldable shape.

56. The process of claim 55, wherein the shape is a cylinder, film, sheet, bead or disc.

57. The process of claim 36, wherein the hybrid polymer is macroporous.

58. The process of claim 36, wherein the hybrid polymer is used as a substrate for subsequent grafting.

59. The process of claim 58, wherein the subsequent grafting comprises the addition of olefinically-unsaturated monomers.

60. The process of claim 58, wherein the olefinically-unsaturated monomers are selected from the list comprising methyl methacrylate, ethyl methacrylate, propyl methacrylate including all isomers thereof, butyl methacrylate including all isomers thereof, other alkyl methacrylates, corresponding acrylates, functionalized methacrylates and acrylates fluoroalkyl (meth)acrylates, methacrylic acid, acrylic acid, fumaric acid and esters thereof, itaconic acid and esters thereof, nucleic anhydride, styrene, .alpha.-methyl styrene, vinyl halides, acrylonitrile, methacrylonitrile, vinylidene halides of formula $CH_2$--$C(Hal)_2$ wherein each halogen is independently Cl or F, optionally substituted butadiene of the formula $CH_2=C(R_1)C(R_1)=CH_2$ wherein $R_1$ is independently H, Cl to $C_{10}$ alkyl, Cl or F, sulphonic acids or derivatives thereof of formula $CH_2=CHSO_2OM$ wherein M is NaS, K, Li, $N(R_2)_4$, or --$(CH_2)_2$--D wherein each $R_2$ is independently H or Cl or $C_{10}$ alkyl, D is $CO_2Z$, OH, $N(R_2)_2$ or $SO_2OZ$ and Z is H. Li, Na, K or $N(R_2)_4$, acrylamide or derivatives thereof of formula $CH_2$--$C(CH_3)CON(R_2)_2$, and/or mixtures thereof.

61. The process of claim 60, wherein the olefinically-unsaturated monomers are selected from the list comprising functionalized methacrylates and styrene.

62. A method for generating a hybrid polymer exhibiting co-continuous character, said method comprising subjecting a substrate polymer to physical stress sufficient to graft one or more other polymers or monomeric subunits thereof and subjecting same to conditions sufficient for said one or more polymers or monomeric subunits thereof to form a thin layer having co-continuous properties.

63. The method of claim 62, wherein the substrate polymer comprises a polyolefin, a fluoropolymer or a blend of polymers or co-polymers.

64. The method of claim 62, wherein the substrate polymer comprises polypropylene or a polypropylene/EPR co-polymer.

65. The method of claim 62, wherein the substrate polymer comprises a polypropylene/EPDM blend.

66. The method of claim 62, wherein the substrate polymer comprises polyethylene.

67. The method of claim 62, wherein the substrate polymer comprises the following characteristics:-

a hardness value of from about Hardness Shore “A” 5 to about Hardness Shore "D" 100; and

a Flexural Modulus Value of from about 50 to about 2000 Mpa.

68. The method of claim 62, wherein the substrate polymer is a polyolefin or fluorinated polymer comprising the following characteristics:-

a hardness value of from about Hardness Shore “A” 10 to about Hardness Shore "D" 80; and

a Flexural Modulus Value of from about 80 to about 1200 Mpa.

69. The method of claim 62, wherein the substrate polymer comprises a solid phase.

70. The method of claim 62, wherein the substrate polymer is made by a method of macroporous formulation.

71. The method of claim 62, wherein the substrate polymer is macroporous.

72. The method of claim 62, wherein the one or more polymers or monomeric

units thereof are grafted to the substrate polymer in pellicular formation.

73. The method of claim 72, wherein grafting occurs under conditions in which two or more polymers or monomeric units thereof associate by chemical bonding.

74. The method of claim 73, wherein the conditions in which two or more polymers associate comprise the formation of radicals to initiate polymerization of monomeric or polymeric units.

75. The method of claim 62, wherein the entire substrate polymer is subjected to physical stress.

76. The method of claim 62, wherein a surface or sub-surface region of the substrate polymer is subjected to physical stress.

77. The method of claim 75 or 76, wherein the physical stress comprises one or more of stretching, twisting, indenting, bending, compressing, scratching, cutting, heating, irradiating or ejection from a mould.

78. The method of claim 62, wherein the grafted polymer is macroporous.

79. The method of claim 78, wherein the macroporous grafted polymer comprises one or more olefinically-unsaturated monomers.

80. The method of claim 79, wherein said one or more olefinically-unsaturated monomers are selected from the list comprising methyl methacrylate, ethyl methacrylate, propyl methacrylate including all isomers thereof, butyl methacrylate including all isomers thereof, other alkyl methacrylates, corresponding acrylates, functionalized methacrylates and acrylates fluoroalkyl (meth)acrylates, methacrylic acid, acrylic acid, fumaric acid and esters thereof, itaconic acid and esters thereof, nucleic anhydride, styrene, .alpha.-methyl styrene, vinyl halides, acrylonitrile, methacrylonitrile, vinylidene halides of formula $CH_2$--

C(Hal) $_2$ wherein each halogen is independently Cl or F, optionally substituted butadiene of the formula $CH_2=C(R_1)C(R_1)=CH_2$ wherein $R_1$ is independently H, Cl to $C_{10}$ alkyl, Cl or F, sulphonic acids or derivatives thereof of formula $CH_2=CHSO_2OM$ wherein M is NaS, K, Li, $N(R_2)_4$, or --$(CH_2)_2$--D wherein each $R_2$ is independently H or Cl or $C_{10}$ alkyl, D is $CO_2Z$, OH, $N(R_2)_2$ or $SO_2OZ$ and Z is H. Li, Na, K or $N(R_2)_4$, acrylamide or derivatives thereof of formula $CH_2$--$C(CH_3)CON(R_2)_2$, and/or mixtures thereof.

81. The method of claim 80, wherein the olefinically-unsaturated monomers are selected from the list comprising functionalized methacrylates and styrene.

82. The method of claim 78 to 81, wherein the grafted polymer is made by a method of macroporous formulation.

83. The method of claim 82, wherein the method of macroporous formulation results in a honeycomb-like polymer arrangement selected from the list comprising a star polymer, a block polymer and a graft polymer.

84. The method of claim 82, wherein the means results in a polyHIPE-like polymer arrangement.

85. The method of claim 82, wherein the method of macroporous formulation is a microemulsion polymerization

86. The method of claim 62, wherein said conditions sufficient to form a thin layer comprise exposure to a temperature between –20°C and 200°C and exposure to an energy source selected from the list comprising γ-radiation, electron beam radiation, atomic particles, X-rays, U.V., visible or I.R. radiation.

87. The method of claim 62, wherein said conditions sufficient to form a thin layer include exposure to a solvent selected from the list comprising a protic solvent and a non-protic solvent.

88. The method of claim 87, wherein the protic solvent is water or water vapour.

89. The method of claim 62, wherein said one or more other polymers or monomeric subunits thereof is grafted to the substrate polymer in pellicular formation.

90. The method of claim 62, wherein the hybrid polymer has a mouldable shape.

91. The method of claim 90, wherein the shape is a cylinder, film, sheet, bead or disc.

92. The method of claim 91, wherein the hybrid polymer is used as a substrate for subsequent grafting.

93. The method of claim 92, wherein the subsequent grafting comprises the addition of one or more olefinically-unsaturated monomers.

94. The method of claim 93, wherein said one or more olefinically-unsaturated monomers are selected from the list comprising methyl methacrylate, ethyl methacrylate, propyl methacrylate including all isomers thereof, butyl methacrylate including all isomers thereof, other alkyl methacrylates, corresponding acrylates, functionalized methacrylates and acrylates fluoroalkyl (meth)acrylates, methacrylic acid, acrylic acid, fumaric acid and esters thereof, itaconic acid and esters thereof, nucleic anhydride, styrene, .alpha.-methyl styrene, vinyl halides, acrylonitrile, methacrylonitrile, vinylidene halides of formula $CH_2$--C(Hal)$_2$ wherein each halogen is independently Cl or F, optionally substituted butadiene of the formula $CH_2=C(R_1)C(R_1)=CH_2$ wherein $R_1$ is independently H, Cl to $C_{10}$ alkyl, Cl or F, sulphonic acids or derivatives thereof of formula $CH_2=CHSO_2OM$ wherein M is NaS, K, Li, $N(R_2)_4$, or --$(CH_2)_2$--D wherein each $R_2$ is independently H or Cl or $C_{10}$ alkyl, D is $CO_2Z$, OH, $N(R_2)_2$ or $SO_2OZ$ and Z is H. Li, Na, K or $N(R_2)_4$, acrylamide or derivatives thereof of formula $CH_2$--$C(CH_3)CON(R_2)_2$, and/or mixtures thereof.

95. The method of claim 94, wherein said one or more olefinically-unsaturated monomers are selected from the list comprising functionalized methacrylates and styrene.

96. A method for generating a hybrid polymer comprising a substrate polymer and a second or optionally further polymers grafted to a surface and/or sub-surface regions of said substrate polymer optionally in an array, said method comprising:

subjecting said substrate polymer or surface and sub-surface regions thereof to sufficient physical stress to enable the substrate polymer or its regions to form a hybrid with said second or optionally further polymers or monomeric units thereof,

contacting said treated substrate polymer with said second or optionally further polymers under conditions sufficient for the second or optionally further polymers to graft to said substrate polymer or regions thereof;

whereby said second or optionally further polymers is grafted to the surface and/or sub-surface regions of said substrate polymer wherein at least one polymer in the hybrid polymer maintains the co-continuous character of functional groups of said polymer to an external environment.

97. The method of claim 96, wherein the substrate polymer comprises a polyolefin, a fluoropolymer or a blend of polymers or co-polymers.

98. The method of claim 96, wherein the substrate polymer comprises polypropylene or a polypropylene/EPR co-polymer.

99. The method of claim 96, wherein the substrate polymer comprises a polypropylene/EPDM blend.

100. The method of claim 96, wherein the substrate polymer comprises polyethylene.

101. The method of claim 96, wherein the substrate polymer comprises the following characteristics:-

a hardness value of from about Hardness Shore “A” 5 to about Hardness Shore "D" 100; and

a Flexural Modulus Value of from about 50 to about 2000 Mpa.

102. The method of claim 96, wherein the substrate polymer is a polyolefin or fluorinated polymer comprising the following characteristics:-

a hardness value of from about Hardness Shore “A” 10 to about Hardness Shore "D" 80; and

a Flexural Modulus Value of from about 80 to about 1200 Mpa.

103. The method of claims 96, wherein the substrate polymer comprises a solid phase.

104. The method of claim 96, wherein the substrate polymer is made by a method of macroporous formulation.

105. The method of claim 96, wherein the substrate polymer is macroporous.

106. The method of claim 96, wherein one or more polymers or monomeric units thereof are grafted to the substrate polymer or surface or sub-surface regions thereof in pellicular formation.

107. The method of claim 106, wherein grafting occurs under conditions in which two or more polymers or monomeric units thereof associate by chemical bonding.

108. The method of claim 107, wherein the conditions in which two or more polymers associate comprise the formation of radicals to initiate polymerization of monomeric or polymeric units.

109. The method of claim 96, wherein the entire substrate polymer is subjected to physical stress.

110. The method of claim 96, wherein a surface or sub-surface region of the substrate polymer is subjected to physical stress.

111. The method of claims 109 or 110, wherein the physical stress comprises one or more of stretching, twisting, indenting, bending, compressing, scratching, cutting, heating irradiating, or ejection from a mould.

112. The method of claim 96, wherein the grafted polymer is macroporous.

113. The method of claim 112, wherein the grafted macroporous polymer comprises one or more olefinically-unsaturated monomers.

114. The method of claim 113, wherein said one or more olefinically-unsaturated monomers are selected from the list comprising methyl methacrylate, ethyl methacrylate, propyl methacrylate including all isomers thereof, butyl methacrylate including all isomers thereof, other alkyl methacrylates, corresponding acrylates, functionalized methacrylates and acrylates fluoroalkyl (meth)acrylates, methacrylic acid, acrylic acid, fumaric acid and esters thereof, itaconic acid and esters thereof, nucleic anhydride, styrene, .alpha.-methyl styrene, vinyl halides, acrylonitrile, methacrylonitrile, vinylidene halides of formula $CH_2$--$C(Hal)_2$ wherein each halogen is independently Cl or F, optionally substituted butadiene of the formula $CH_2=C(R_1)C(R_1)=CH_2$ wherein $R_1$ is independently H, Cl to $C_{10}$ alkyl, Cl or F, sulphonic acids or derivatives thereof of formula $CH_2=CHSO_2OM$ wherein M is NaS, K, Li, $N(R_2)_4$, or --$(CH_2)_2$--D wherein each $R_2$ is independently H or Cl or $C_{10}$ alkyl, D is $CO_2Z$, OH, $N(R_2)_2$ or $SO_2OZ$ and Z is H. Li, Na, K or $N(R_2)_4$, acrylamide or derivatives thereof of formula $CH_2$--$C(CH_3)CON(R_2)_2$, and/or mixtures thereof.

115. The method of claim 114, wherein said one or more olefinically-unsaturated

monomers are selected from the list comprising functionalized methacrylates and styrene.

116. The method of claim 112 to 115, wherein the grafted polymer is made by a method of macroporous formulation.

117. The method of claim 116, wherein the method of macroporous formulation results in a honeycomb-like polymer arrangement selected from the list comprising a star polymer, a block polymer and a graft polymer.

118. The method of claim 116, wherein the means results in a polyHIPE-like polymer arrangement.

119. The method of claim 116, wherein the method of macroporous formulation is a microemulsion polymerization.

120. The method of claim 96, wherein said conditions sufficient for the second or optionally further polymers or monomeric units thereof to graft comprise exposure to a temperature between –50°C and 150°C and exposure to an energy source selected from the list comprising γ-radiation, electron beam radiation, atomic particles, X-rays, U.V., visible or I.R. radiation. .

121. The method of claim 96, wherein said conditions sufficient for the second or optionally further polymers or monomeric units thereof to graft comprise exposure to a solvent selected from the list comprising a protic solvent or a non-protic solvent.

122. The method of claim 120, wherein the protic solvent is water or water vapour.

123. The method of claim 96, said second or optionally further polymers or monomeric units thereof is grafted to the substrate polymer in pellicular formation.

124. The method of claim 96, wherein the external environment comprises a

surrounding solvent, solution or other liquid, solid or gaseous environment comprising reactive entities.

125. The method of claim 96, wherein the array comprises an ordered pattern of regions on the surface or sub-surface of the substrate polymer.

126. The method of claim 96, wherein the array comprises a random pattern of regions on the surface or sub-surface of the substrate polymer.

127. The method of claims 125 or 126, wherein the pattern is homogenous.

128. The method of claims 125 or 126, wherein the pattern is heterogenous.

129. The method of claim 96, wherein the hybrid polymer has a mouldable shape.

130. The method of claim 129, wherein the shape is a cylinder, film, sheet, bead or disc.

131. The method of claim 96, wherein the hybrid polymer is macroporous.

132. The method of claim 96, wherein the hybrid polymer is used as a substrate for subsequent grafting.

133. The method of claim 132, wherein the subsequent grafting comprises the addition of one or more olefinically-unsaturated monomers.

134. The method of claim 133, wherein the one or more olefinically-unsaturated monomers are selected from the list comprising methyl methacrylate, ethyl methacrylate, propyl methacrylate including all isomers thereof, butyl methacrylate including all isomers thereof, other alkyl methacrylates, corresponding acrylates, functionalized methacrylates and acrylates fluoroalkyl (meth)acrylates, methacrylic acid, acrylic acid, fumaric acid and

esters thereof, itaconic acid and esters thereof, nucleic anhydride, styrene, .alpha.-methyl styrene, vinyl halides, acrylonitrile, methacrylonitrile, vinylidene halides of formula $CH_2$--C(Hal) $_2$ wherein each halogen is independently Cl or F, optionally substituted butadiene of the formula $CH_2=C(R_1)C(R_1)=CH_2$ wherein $R_1$ is independently H, Cl to $C_{10}$ alkyl, Cl or F, sulphonic acids or derivatives thereof of formula $CH_2=CHSO_2OM$ wherein M is NaS, K, Li, $N(R_2)_4$, or --$(CH_2)_2$--D wherein each $R_2$ is independently H or Cl or $C_{10}$ alkyl, D is $CO_2Z$, OH, $N(R_2)_2$ or $SO_2OZ$ and Z is H. Li, Na, K or $N(R_2)_4$, acrylamide or derivatives thereof of formula $CH_2$--$C(CH_3)CON(R_2)_2$, and/or mixtures thereof.

135. The method of claim 134, wherein the one or more olefinically-unsaturated monomers are selected from the list comprising functionalized methacrylates and styrene.